

New Jersey Department of Environmental Protection

Bureau of Discharge Prevention

ENVIRONMENTALLY SENSITIVE AREAS GUIDANCE DOCUMENT

This "Guidance on Environmentally Sensitive Areas" is intended for use as a reference and a guide when gathering information to be used in preparing the topographical maps for Discharge Prevention, Containment and Countermeasure (DPCC), and Discharge Cleanup and Removal (DCR) Plans. It gathers in one place all the citations listed in N.J.A.C. 7:1E-1.8, which establishes the definition of environmentally sensitive areas for the purpose of developing the DPCC/DCR plan. The areas described in this document are by no means the only environmentally sensitive areas in New Jersey, but represent those most likely to be adversely affected by the discharge of a hazardous substance. When used in conjunction with N.J.A.C. 7:1, Appendix A, "Mapping and Digital Data Standards", it will prove useful in preparing the topographical maps and the environmentally sensitive areas protection plan that are required as part of the Discharge Cleanup and Removal plan.

Introduction

N.J.A.C. 7:1E-4.2(b)6 requires that topographical maps covering all surrounding areas which could be affected by a discharge from a facility, including environmentally sensitive areas, be included in the Discharge Prevention, Containment and Countermeasure (DPCC) plan. In addition, a deployment plan covering environmentally sensitive areas is to be submitted as a part of the Discharge Cleanup and Removal (DCR) plan, N.J.A.C. 7:1E-4.3(a)7. N.J.A.C. 7:1E-1.8 sets forth geographical areas which will be considered environmentally sensitive areas for the purposes of designing and implementing the DPCC and DCR plans.

The definition of "environmentally sensitive areas" at N.J.A.C. 7:1E-1.8 has been developed for planning and use in the prevention and control of discharges of hazardous substances. The term is referred to in the Spill Compensation and Control Act (N.J.S.A. 58:10-23.11 et seq.), but is not defined therein.

A task force drawn from the diverse programs within the Department used a number of factors in order to define environmentally sensitive areas. These factors included importance to the quality of life in New Jersey, scarcity of the resource, importance placed on the area by other State and federal legislation, and the ecology of the area. The areas which the task force determined should be given the highest priority in protection from discharges, based on the above factors, are included in the definition of "environmentally sensitive areas".

The resulting definition, at N.J.A.C. 7:1E-1.8, describes those areas which would be most likely to be adversely affected by the discharge of a hazardous substance. The owner or operator of a major facility is responsible for determining whether these areas would be affected by a discharge from their facility. Environmentally sensitive areas may need special protection in the event of a discharge. By identifying and mapping such areas, owners or operators of major facilities will be better able to prioritize their responses to a discharge.

The following document describes each area which is considered environmentally sensitive pursuant to N.J.A.C. 7:1E-1.8, giving a brief summary of what this area encompasses and the pertinent text of the citation(s) referenced.

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SURFACE WATERS

AREA: N.J.A.C. 7:1E-1.8(a)1, Surface waters, including without limitation the following: large rivers, medium rivers, streams, creeks, ponds, lakes and reservoirs as defined in N.J.A.C. 7:7E-4.1, canals as defined in N.J.A.C. 7:7E-3.8, estuaries, as defined in 33 U.S.C. 1330(k), and bays, including without limitation open bays, semi-enclosed bays and back bays, as defined in N.J.A.C. 7:7E-4.1.

ENVIRONMENTAL IMPORTANCE: Surface waters include all types of open water, such as rivers, streams, ponds, lakes, bays, canals, and estuaries. These must be protected to prevent waterfowl, animals, and fish from being adversely affected by a discharge. In addition, waters important for recreational activities, such as boating and fishing, are included in this category and must be protected for their cultural and economic value. Freshwater waterways serving as passages to and from spawning areas are important for the survival of numerous varieties of fish and are thus to be protected. Water areas are wintering points for birds, such as the Canada Goose and other waterfowl, and breeding areas for colonial waterbirds and aquatic furbearers, such as otter, muskrat, beaver, and mink.

CITATIONS: N.J.A.C. 7:7E-4.1 defines large rivers as waterways with watersheds greater than 1,000 square miles, which means the Delaware, Hudson, and Raritan Rivers.

1. The Delaware River is a tidal river from the Bridge Street Bridge in Trenton to its mouth at Delaware Bay, defined as a line between Alder Cover, Lower Alloways Creek Township and the Delaware River Basin Commission-River and Bay Memorial at Liston Point, Delaware.
2. The Hudson River is a tidal river from the New York State Line to its mouth at Upper New York Bay at the Morris Canal, Jersey City.
3. The Raritan River is a tidal river from a point approximately 1.1 miles upstream from the Landing Lane Bridge between Piscataway and Franklin Townships to its mouth at Raritan Bay and the Arthur Kill.

N.J.A.C. 7:7E-4.1 defines medium rivers, streams and creeks as channels with a watershed area of less than 1,000 square miles. This includes watercourses such as the Hackensack, Passaic, Oldmans, Big Timber, Pennsauken, Navesink, Manasquan, Toms, Wading, Mullica, Great Egg, Maurice, Cohansey, Salem and Rancocas and smaller streams.

Ponds, lakes and reservoirs are defined by N.J.A.C. 7:7E-4.1 as relatively small water bodies with no tidal influence or salinity. Many are groundwater fed, while others serve as surface aquifer recharge areas. Lakes that are the result of former mining operations are not included here, but are defined separately as wet borrow pits.

N.J.A.C. 7:7E-3.8 states that canals are navigation channels for boat traffic through land areas which are created by cutting and dredging or other human construction technique sometimes

enlarging existing natural surface water channels. The Cape May, Bay Head-Manasquan, and Delaware and Raritan Canals are the principal examples in the New Jersey Coastal zone.

In accordance with 33 U.S.C. 1330(k), the term "estuarine zone" means an environmental system consisting of an estuary and those transitional areas which are consistently influenced or affected by water from the estuary such as, but not limited to, salt marshes, coastal and intertidal areas, bays, harbors, lagoons, inshore waters, and channels, and shall also include associated aquatic ecosystems and those portions of tributaries draining into the estuary up to the historic height of migration of anadromous fish or the historic head of tidal influence, whichever is higher. The term "estuary" means all or part of the mouth of a river or stream or other body of water having unimpaired natural connection with open sea and within which the sea water is measurably diluted with fresh water derived from land drainage.

According to N.J.A.C. 7:7E-4.1, an "open bay" is defined as a large, semi-confined estuary with a wide unrestricted inlet to the ocean and with a major river mouth discharging directly into its upper portion. Delaware Bay, Raritan Bay, Sandy Hook Bay, and Upper New York Bay are the only representatives of this waterbody type in New Jersey.

Semi-enclosed bays and back bays are defined at N.J.A.C. 7:7E-4.1 as a partially confined estuary with direct inlet connection and some inflow of freshwater. Semi-enclosed bays differ from back bays in depth, degree of restriction of inlet and level of freshwater inflow. Great Bay and Great Egg Harbor are examples of semi-enclosed bays; Barnegat Bay, Little Egg Harbor, the Shark River estuary and other bays in Atlantic and Cape May Counties are back bays.

SOURCES OF WATER SUPPLY

AREA: N.J.A.C. 7:1E-1.8(a)2, Sources of water supply, including surface water intakes and wells drawing from aquifers and confined aquifers as defined at N.J.A.C. 7:19-1.3, which are utilized by public community water systems, public noncommunity water systems, public water systems, nonpublic water systems and water systems as defined in N.J.A.C. 7:10-1.3.

ENVIRONMENTAL IMPORTANCE: Sources of water supply include feeder streams entering a water supply reservoir, reservoirs and buffer zones, surface water intakes, and the aquifers utilized by water supply wells with their attendant wellhead protection areas. These must be protected to prevent contamination of drinking water supplies and widespread and long lasting contamination of aquifers.

CITATIONS: "Aquifer" is defined by N.J.A.C. 7:19-1.3 as any subsurface water-saturated zone which is significantly permeable so that it may yield sufficient quantities of water from wells or springs in order to serve as a practical source of water, while a "confined aquifer" is an aquifer which contains groundwater under pressure between or below relatively impermeable or significantly less permeable material so that the water surface rises above the top of the aquifer in a well which derives its water from that aquifer.

According to N.J.A.C. 7:10-1.3, "public water system" means a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves at least 25 individuals daily at least 60 days out of the year. Such term includes: any collection, treatment, storage and distribution facilities under control of the operator of such system and used primarily in connection with such system, and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. A public water system is either a "community water system" or a "non-community water system".

"Public community water system" means a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

"Public noncommunity water system" means a public water system that is not a community water system.

"Water system" means a system for providing potable water to any person.

"Nonpublic system" means a water system that is not a public water system.

BAY ISLANDS AND BARRIER ISLAND CORRIDORS

AREA: N.J.A.C. 7:1E-1.8(a)3, Bay islands as defined at N.J.A.C. 7:7E-3.21, and barrier island corridors as defined at N.J.A.C. 7:7E-3.20.

ENVIRONMENTAL IMPORTANCE: Bay islands are non-oceanfront islands surrounded by tidal waters. Barrier island corridors are those portions lying upland of wetlands and beaches including the filled water's edge. They provide valuable wildlife habitat and potential habitat for colonial nesting birds and threatened and endangered species.

CITATIONS: N.J.A.C. 7:7E-3.21 states that bay islands are islands or filled areas surrounded by tidal waters, wetlands, beaches or dunes, lying between the mainland and barrier islands. Such islands may be connected to the mainland or barrier island by elevated or fill supported roads.

Barrier island corridors are defined by N.J.A.C. 7:7E-3.20 as being the interior portions of oceanfront barrier islands, spits, and peninsulas. Along the New Jersey coast, headlands are located between Monmouth Beach, Monmouth County and Point Pleasant Beach, Ocean County.

The oceanfront barrier island corridor encompasses that portion of barrier islands, spits and peninsulas (narrow land areas surrounded by both bay and ocean waters and connected to the mainland) that lies upland of wetlands, beach and dune systems, filled water's edges, and existing lagoon edges. Barrier island corridor does not apply to the headlands of northern Ocean County, Monmouth County, and the tip of Cape May County, which are part of the mainland.

BEACHES

AREA: N.J.A.C. 7:1E-1.8(a)4, Beaches, as defined in N.J.A.C. 7:7E-3.22.

ENVIRONMENTAL IMPORTANCE: Beaches are migratory stopover areas and wintering areas for a great variety of migratory birds and are, therefore, ecologically important. They also support numerous other types of plant and animal life on a year-round basis. In addition, contamination of beaches in tourist areas could cause severe economic repercussions to the tourism industry in New Jersey.

CITATIONS: According to N.J.A.C. 7:7E-3.22, beaches include both natural and man-made features. Beaches are gently sloping areas of sand or other unconsolidated material that extend landward from the mean high water line to either: (1) a man-made feature generally parallel to the ocean, inlet, or bay waters, such as a retaining structure, seawall, bulkhead, road or boardwalk, except that sandy areas that extend fully under and landward of an elevated boardwalk are considered beach areas, or (2) the seaward or bayward foot of dunes, whichever is closest to the bay, inlet or ocean waters.

Beaches can be found on all tidal shorelines, including ocean, bay and river shorelines.

DUNES

AREA: N.J.A.C. 7:1E-1.8(a)5, Dunes, as defined in N.J.A.C. 7:7E-3.16.

ENVIRONMENTAL IMPORTANCE: Dunes include both natural and man-made formations of vegetated or drifting wind-blown sand, that lie generally parallel to, and landward of the beach, and between the upland limit of the beach and the foot of the most inland dune slope. Dunes are migratory stopover areas and wintering areas for a great variety of migratory birds and are, therefore, ecologically important. They also support numerous other types of plant and animal life on a year-round basis.

CITATIONS: N.J.A.C. 7:7E-3.16 defines a dune as a wind or wave deposited or man-made formation of sand (mound or ridge), that lies generally parallel to, and landward of, the beach, and between the upland limit of the beach and the foot of the most inland dune slope. "Dune" includes the foredune, secondary and tertiary dune ridges, as well as man-made dunes, where they exist.

Formations of sand immediately adjacent to beaches that are stabilized by retaining structures, and/or snow fences, planted vegetation, and other measures are considered to be dunes regardless of the degree of modification of the dune by wind or wave action or disturbance by development.

A small mound of loose, windblown sand found in a street or on a part of a structure as a result of storm activity is not considered to be a "dune".

WETLANDS AND WETLAND TRANSITION AREAS

AREA: N.J.A.C. 7:1E-1.8(a)6, Wetlands and wetland transition areas, including without limitation the following: freshwater wetlands and wetlands transition areas as defined at N.J.A.C. 7:7A-1.4, and wetlands as defined in N.J.A.C. 7:7E-3.27.

ENVIRONMENTAL IMPORTANCE: Wetlands and wetland transition zones include coastal wetlands and a buffer of 150 feet from the wetland edge, freshwater wetlands and a buffer of 300 feet from the wetland edge, and current or former cranberry bogs. A coastal wetland is a bank, marsh, swamp, meadow, flat or other low land subject to tidal action in the State of New Jersey along the Delaware Bay and Delaware River, Raritan Bay, Barnegat Bay,

Sandy Hook Bay, Shrewsbury River, including Navesink River, Shark River, and the coastal inland waterways extending southerly from Manasquan Inlet to Cape May Harbor, or at any inlet, estuary, or tributary waterway or any thereof, including those areas now or formerly conducted to tidal waters whose surface is at or below an elevation of one foot above local extreme high water, and upon which certain water-dependent types of vegetation may grow or is capable of growing. This vegetation includes salt meadow grass (*Spartina patens*), spike grass (*Distichlis spicata*), black grass (*Juncus gerardi*), saltmarsh grass (*Spartina alterniflora*), saltworts (*Salicornia Europaea* and *Salicornia bigelovii*), Sea Lavender (*Limonium carolinianum*), saltmarsh bulrushes (*Scirpus robustus* and *Scirpus paludosus* var. *atlanticus*), sand spurrey (*Spergularia marina*), switch grass (*Panicum virgatum*), tall cordgrass (*Spartina pectinata*), hightide bush (*Iva frutescens* var. *oraria*), cattails (*Typha augustifolia* and *Typha latifolia*), spike rush (*Eleocharis rostellata*), chairmaker's rush (*Scirpus americana*), bent grass (*Agrostis palustris*), and sweet grass (*Hierochloa odorata*). A freshwater wetland is an area that is saturated or inundated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions (hydrophytic vegetation). The various types of wetlands are host to a great variety of plant and animal life. Wetlands are also nesting and wintering areas for a significant number of birds. Therefore, wetlands are both economically and ecologically important resource areas. Wetlands are regulated and protected under the Wetlands Act of 1970 (N.J.S.A. 13:9A-1 et seq.) or the Freshwater Wetlands Protection Act of 1987 (N.J.S.A. 13:9B-1 et seq).

CITATIONS: N.J.A.C. 7:7A-1.4 defines "freshwater wetland" to mean an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation. The Department, in designating a wetland, uses the three-parameter approach (that is, hydrology, soils and vegetation) enumerated in the "Federal Manual for Identifying and Delineating Jurisdictional Wetlands", and any subsequent amendments thereto. These include tidally influenced wetlands which have not been included on a promulgated map pursuant to the Wetlands Act of 1970, N.J.S.A. 13:9A-1 et seq.

"Wetland transition area" means an area of land adjacent to a freshwater wetland which minimizes adverse impacts on the wetland or serves as an integral component of the wetlands ecosystem.

"Wetland" is defined at N.J.A.C. 7:7E-3.27 to mean an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation.

All tidal wetlands situated in the Raritan Basin, south along the Atlantic Ocean and north along

Delaware Bay and Delaware River which are delineated at a scale of 1:2,400 on official maps as listed under N.J.A.C. 7:7-2.2, are subject to the Wetlands Act of 1970.

All tidal and inland wetlands are subject to the Freshwater Wetlands Protection Act of 1987, unless the wetland is located within the boundary of coastal wetlands delineated on the official maps cited above or is located within the jurisdiction of the Hackensack Meadowlands Commission or the Pinelands Commission.

Generalized locations of both coastal and inland wetlands can be found at a scale of 1:24,000 on maps produced for the National Wetlands Inventory by the U.S. Fish and Wildlife Service. Generalized locations of some wetland types can be found in county soil surveys prepared by the U.S. Department of Agriculture, Soil Conservation Service. These maps are useful as an indicator to assist in the preliminary determination of the presence or absence of wetlands only. They have been determined to be unreliable for the purpose of locating the actual wetlands boundary.

BREEDING AREAS

AREA: N.J.A.C. 7:1E-1.8(a)7, Breeding areas for forest area nesting species, colonial waterbirds, or aquatic furbearers.

ENVIRONMENTAL IMPORTANCE: Breeding areas for forest area nesting species include large tracts of contiguous forest with populations of one or more of neotropical migrant species. Breeding areas for colonial waterbirds are areas occupied by one or more of fifteen species of colonially nesting birds (from one of the last 5 census counts). Breeding areas for aquatic furbearers include those areas which provide food, water or cover, or sites to rear young, for any of the following species: otter, muskrat, beaver, or mink. Breeding areas are of vital importance to the survival of all species of birds and animals in New Jersey.

MIGRATORY STOPOVER AREAS

AREA: N.J.A.C. 7:1E-1.8(a)8, Migratory stopover areas for migrant shorebirds, raptors, or passerines.

ENVIRONMENTAL IMPORTANCE: The migratory stopover areas for migrant shorebirds include all beaches and tidal marsh habitats along the Delaware Bay and Atlantic Coast from Cape May Point north to the Cohansey River and Cape May Point north to Sea Isle City. The migratory stopover areas for migrating raptors and passerines include the lower 10 kilometers of Cape May Peninsula. The contamination of a migratory stopover area during migration could result in death or injury for thousands of birds that do not make their permanent homes in New Jersey. This could seriously damage the population of some species.

WINTERING AREAS

AREA: N.J.A.C. 7:1E-1.8(a)9, Wintering areas, including coastal tidal marshes and water areas, waterfowl concentration areas, and Atlantic white cedar stands.

ENVIRONMENTAL IMPORTANCE: Wintering areas include coastal tidal marshes and water areas (sounds, bays, rivers) from Raritan Bay South to Cape May and from Cape May North to Rancocas; waterfowl concentration areas, which include all water areas (streams, ponds, lakes), estates, municipal and county parks, corporate lands, and Fort Dix; and Atlantic white cedar stands. A stand is a contiguous group of trees sufficiently uniform in species composition, arrangement of age classes, and condition to be a homogeneous and distinguishable unit.

PRIME FISHING AREAS

AREA: N.J.A.C. 7:1E-1.8(a)10, Prime fishing areas, as defined in N.J.A.C. 7:7E-3.4.

ENVIRONMENTAL IMPORTANCE: Prime fishing areas are those tidal or water's edge areas with a significant history of local fishing use.

CITATION: According to N.J.A.C. 7:7E-3.4, prime fishing areas include tidal water areas and water's edge areas which have a demonstrable history of supporting a significant local quantity of recreational or commercial fishing activity. The area includes all coastal jetties and groins and public fishing piers or docks. Prime fishing areas also include all red line delineated features within New Jersey's three mile territorial sea illustrated in: B.L. Freeman and L.A. Walford (1974) Angler's Guide to the United States Atlantic Coast Fish; Fishing Grounds and Fishing Facilities, Section III and IV; or as areas indicated on New Jersey's Specific Sport and Commercial Fishing Grounds Chart (page 14) contained in "New Jersey's Recreational and Commercial Ocean Fishing Grounds," Long and Figley (1984); recently developed artificial

reefs off the New Jersey coast as identified in Figley (1989), "A Guide to Fishing and Diving New Jersey's Artificial Reefs", and The Fishing Grounds of Raritan, Sandy Hook and Delaware Bays as determined in Figley and McCloy (1988) "New Jersey's Recreational and Commercial Fishing Grounds of Raritan Bay, Sandy Hook Bay and Delaware Bay, and The Shellfish Resources of Raritan Bay and Sandy Hook Bay". As of 1988, eight artificial reefs have been created along the Jersey Coast. While this information source applies only to the Delaware and Raritan Bay and Atlantic Ocean shorefronts, prime fishing areas do occur throughout the coastal zone.

FINFISH MIGRATORY PATHWAYS

AREA: N.J.A.C. 7:1E-1.8(a)11, Finfish migratory pathways, as defined in N.J.A.C. 7:7E-3.5.

ENVIRONMENTAL IMPORTANCE: Finfish migratory pathways are waterways serving as passages to and from spawning areas. They are necessary for the propagation of the species using the migratory pathways.

CITATIONS: N.J.A.C. 7:7E-3.5 states that finfish migratory pathways are waterways (rivers, streams, creeks, bays, inlets) which can be determined to serve as passageways for diadromous fish to or from seasonal spawning areas, including juvenile anadromous fish which migrate in autumn and those listed by H.E. Zich (1977) "New Jersey Anadromous Fish Inventory" NJDEP Miscellaneous Report No. 41, and including those portions of the Hudson and Delaware Rivers within the coastal zone boundary.

Species of concern include: alewife or river herring (*Alosa pseudoharengus*), blueback herring (*Alosa sapidissima*), American shad (*Alosa aspidissima*), striped bass (*Monroe saxatilis*), Atlantic sturgeon (*Acipenser oxyrinchus*), Shortnose sturgeon (*Acipenser brevirostrum*) and American eel (*Anguilla rostrata*).

WATER AREAS SUPPORTING SUBMERGED VEGETATION

AREA: N.J.A.C. 7:1E-1.8(a)12, Water areas supporting various species of submerged vegetation, as defined in N.J.A.C. 7:7E-3.6.

ENVIRONMENTAL IMPORTANCE: Water areas supporting various species of submerged plants include shipwrecks, artificial reefs, sites of known vessel remains, or similar structures. These areas of vegetation are important habitat areas for various species of fish.

CITATIONS: N.J.A.C. 7:7E-3.6 states that a submerged vegetation special area consists of water areas supporting or documented as previously supporting rooted, submerged vascular plants such as widgeon grass (*Ruppia maritima*), sago pondweed (*Potamogeton pectinatus*), horned pondweed (*Zannichellia palustris*) and eelgrass (*Zostera marina*). In New Jersey, submerged vegetation is most prevalent in the shallow portions of the Navesink, Shrewsbury, Manasquan and Metedeconk Rivers, and in Barnegat, Manahawkin and Little Egg Harbor Bays. Other submerged vegetation species in lesser quantities include, but are not limited to, the following: water weed (*Elodea nuttalli*), *Eriocaulon parkeri*, *Liaeopsis chinesis*, *Naja flexilis*, *Nuphar variegatum*, *Potamogeton crispus*, *Potamogeton epihydrus*, *Potamogeton perfoliatus*, *Potamogeton pusillus*, *Scripus subterminalis* and *Vallisneria americana*. Detailed maps of the distribution of the above species for New Jersey, and a method of delineation, are available from the Department in the New Jersey Submerged Aquatic Vegetation Distribution Atlas (Final Report), February, 1980, conducted by Earth Satellite Corporation and also on 'Eelgrass Inventory' maps prepared by the Division of Fish, Game and Wildlife, Bureau of Shellfisheries, 1983.

SHELLFISH HARVESTING WATERS

AREA: N.J.A.C. 7:1E-1.8(a)13, Shellfish harvesting waters as defined in N.J.A.C. 7:9B-1.4.

ENVIRONMENTAL IMPORTANCE: Shellfish harvesting waters are estuarine bay and river bottoms which are potentially productive for hard clams, soft clams, eastern oysters, bay scallops, or blue mussels. These areas are of economic importance in New Jersey.

CITATIONS: N.J.A.C. 7:9B-1.4 defines shellfish waters to mean waters classified as Approved, Seasonally Approved, Special Restricted, Seasonally Special Restricted or Condemned that support or possess the potential to support shellfish which are within the Coastal Area Facility Review Act (CAFRA) zone as delineated in 1973, excluding:

1. The Cohansey River upstream of Brown's Run;

2. The Maurice River upstream of Route 548;
3. The Great Egg Harbor River upstream of Powell Creek;
4. The Tuckahoe River upstream of Route 50;
5. The Mullica River upstream of the Garden State Parkway

plus the adjacent areas between Route 35 (from its juncture with the CAFRA zone just north of Red Bank to its juncture with the CAFRA zone just south of Keyport) and the CAFRA zone and the area from the CAFRA zone on the south northwesterly along Route 35 to the northern shore of the Raritan River, then easterly along the northern shore of the Raritan River to the southeast point of Perth Amboy, then due east to the New Jersey jurisdictional limit, and seaward along the jurisdictional limit to the Atlantic Ocean.

FOREST AREAS

AREA: N.J.A.C. 7:1E-1.8(a)14, Forest areas, including prime forestland and unique forestland.

ENVIRONMENTAL IMPORTANCE: Prime forestland is land capable of growing 85 cubic feet of timber per acre per year. Unique forestland is land not qualifying as prime on the basis of cubic foot growth but that is growing sustained yields of specific high value species.

These areas are of economic, cultural, and ecological importance. They provide habitat for a wide variety of species, absorb carbon dioxide and other pollutants from the air, and generate oxygen.

HABITAT FOR FEDERAL AND STATE ENDANGERED OR THREATENED PLANT AND ANIMAL SPECIES

AREA: N.J.A.C. 7:1E-1.8(a)15, Habitat for federal and State endangered or threatened

plant and animal species, as defined at N.J.A.C. 7:7E-3.38.

ENVIRONMENTAL IMPORTANCE: These species and their habitat must be protected in the event of a discharge, since contamination could result in the loss of the entire population of a given species in New Jersey.

CITATIONS: N.J.A.C.7:7E-3.38 describes endangered species habitat as those areas known to be inhabited on a seasonal or permanent basis by or to be critical at any stage in the life cycle of any wildlife (fauna) or vegetation (flora) identified as “endangered” or “threatened” species on official Federal or State lists of endangered or threatened species, or under active consideration for State or Federal listing. It also includes a sufficient buffer area to insure survival of the population of the species. This buffer is dependent on the range of the species.

The federal definition of "endangered species" is any species which is in danger of extinction throughout all or a significant portion of its range other than a species of the Class Insecta determined to constitute a pest whose protection would present an overwhelming and overriding risk to man. The full federal endangered and threatened wildlife list can be found at 50 CFR 17.11(h). Those species on the federal list which are found in New Jersey are included on the lists found at N.J.A.C. 7:7E-3.38.

The State definition of "wildlife" from N.J.S.A. 23:2A is any wild mammal, bird, reptile, amphibian, fish, mollusk, crustacean or other wild animal or any part, product, egg or offspring or the dead body or parts thereof. The term "plant" means any member of the plant kingdom, including seeds, roots and other parts thereof. The term "species" includes any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature.

The State definition of “endangered”, found in the New Jersey Endangered and Nongame Species Conservation Act, N.J.S.A. 23:2A, is any species or subspecies of wildlife whose prospects of survival or recruitment are in jeopardy or are likely within the foreseeable future to become so due to any of the following factors:

1. the destruction, drastic modification, or severe curtailment of its habitat,
2. its over-utilization for scientific, commercial or sporting purposes,

3. the effect on it of disease, pollution, or predation,
4. other natural or manmade factors affecting its prospects of survival or recruitment within the State, or
5. any combination of the foregoing factors. The term also includes any species or subspecies of wildlife appearing on any Federal endangered species list.

The term "threatened species" means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

N.J.A.C. 7:7E-3.38(c) - STATE LIST OF ENDANGERED WILDLIFE SPECIES

Federal endangered species below have been marked with an asterisk(*).

Common Name

Scientific Name

FISH

Shortnose Sturgeon*

Acipenser brevirostrum

AMPHIBIANS

Tremblay's Salamander

Ambystoma tremblayi

Blue-spotted Salamander

Ambystoma laterale

Eastern Tiger Salamander

Ambystoma tigrinum tigrinum

Pine Barrens Treefrog

Hyla andersoni

Southern Gray Treefrog

Hyla chrysocelis

REPTILES

Atlantic Hawksbill Turtle*
Atlantic Loggerhead Turtle*
Atlantic Ridley Turtle*
Atlantic Leather-back Turtle
Bog Turtle
Timber Rattlesnake
Corn Snake

Eretmochelys imbricata
Caretta caretta
*Lepidochelys kemp*i
Dermochelys coriacea
Clemmys muhlenbergi
Crotalus horridus horridus
Elaphe guttata guttata

BIRDS

Bald Eagle*
Peregrine Falcon*
Cooper's Hawk
Least Tern
Black Skimmer
Northern Harrier
Short-eared Owl
Pied-billed Grebe
Upland Sandpiper
Sedge Wren
Henslow's Sparrow
Vesper Sparrow
Piping Plover
Roseate Tern
Loggerhead Shrike
Red-shouldered Hawk
Common Name

Haliaeetus leucocephalus
Falco peregrinus
Accipiter cooperii
Sterna albifrons
Rynchops niger (Breeding pop.)
Circus cyaneus (Breeding pop.)
Asio flammeus (Breeding pop.)
Podilymbus podiceps
Bartramia longicauda
Cistothorus platensis (Breeding pop.)
Ammodramus henslowii
Poocetes gramineus (Breeding pop.)
Charadrius melodus
Sterna dougallii
Lanius ludovicianus
Buteo lineatus (Breeding pop.)
Scientific Name

MAMMALS

Sperm Whale*	Physter catedon
Blue Whale*	Balaenopetera musculus
Fin Whale*	Balaenopetera physalus
Sei Whale*	Balaenopetera borealis
Humpback Whale*	Megaptera novaeangliae
Bobcat	Lynx rufus
Eastern Woodrat	Neotoma floridana
Right Black Whale	Balaena glacialis

INVERTEBRATES

Mitchell's Satyr (butterfly)*	Neonympha m. mitchellii
Northeastern Beach Tiger Beetle	Cicindela d. dorsalis
American Burying Beetle*	Nicrophorus americanus
Dwarf Wedge Mussel*	Alasmidonta heterodon

N.J.A.C. 7:7E-3.38(d) - STATE LIST OF THREATENED WILDLIFE SPECIES

Federal threatened species below have been marked with an asterisk(*).

Common Name

Scientific Name

AMPHIBIANS

Long-tailed Salamander	Eurycea longicauda
Eastern Mud Salamander	Pseudotriton montanus

REPTILES

Wood Turtle

Clemmys insculpta

Northern Pine Snake

Pituophis m. melanoleucus

Atlantic Green Turtle*

Chelonia mydas

BIRDS

Osprey

Paridon haliaetus

Great Blue Heron

Ardea herodias

Red-shouldered Hawk

Buteo lineatus

Red-headed Woodpecker

Melanerpes erthyrocephalus

Bobolink

Dolichonyx oryzivorus

Savannah Sparrow

Passerculus sandwichensis

Ipswich Sparrow

Passerculus sandwichensis princeps

Grasshopper Sparrow

Ammodramus savannarum

Yellow-crowned Night Heron

Nyctanassa violacca

American Bittern

Botaurus legtimosos

Northern Goshawk

Accipiter gentilis

Black Rail

Laccipiter jamaicensis

Barred Owl

Strix varia

Little Blue Heron

Egretta caerulea

Long-eared Owl

Asio otus

Cliff Swallow

Hirundo pyrrhonota

The Division of Parks and Forestry is responsible for promulgating the official Endangered Plant Species List. Because this list is periodically revised based on new information documented by the Department, the current list should be obtained by contacting the Division of Parks and Forestry, Office of Natural Land Management, CN 404, Trenton, NJ 08625-0404. The list as

constituted on 5/15/95 follows.

ENDANGERED PLANT SPECIES LIST

<u>Scientific Name</u>	<u>Common Name</u>
<i>Aeschynomene virginica</i>	sensitive joint-vetch
<i>Alisma triviale</i>	large water-plantain
<i>Amaranthus pumilus</i>	sea-beach pigweed
<i>Amelanchier sanguinea</i>	running serviceberry
<i>Ammannia latifolia</i>	Koehn's tooth-cup
<i>Andromeda glaucophylla</i>	bog rosemary
<i>Anemone cylindrica</i>	long-headed anemone
<i>Antennaria neglecta</i> var. <i>canadensis</i>	Canada pussytoes
<i>Aplectrum hyemale</i>	puttyroot
<i>Arabis drummondii</i>	Drummond's rock cress
<i>Arceuthobium pusillum</i>	dwarf mistletoe
<i>Arenaria stricta</i>	rock sandwort
<i>Aristida lanosa</i>	wooly three-awned grass
<i>Armoracia lacustris</i>	lake cress
<i>Asimina triloba</i>	pawpaw
<i>Asplenium bradleyi</i>	Bradley's spleenwort
<i>Asplenium pinnatifidum</i>	lobed spleenwort
<i>Aster borealis</i>	rush aster
<i>Aster firmus</i>	shining aster
<i>Aster praealtus</i>	willow-leaved aster
<i>Aster radula</i>	low rough aster

Athyrium pycnocarpon	glade fern
Atriplex subspicata	orache
Bidens beckii	water-marigold
Bidens bidentoides	bur-marigold
Bidens eatonii	Eaton's bur-marigold
Boltonia asteroides var. glastifolia	boltonia
Botrychium multifidum	leathery grape-fern
Bouteloua curtipendula	side-oats gramma grass
Cacalia atriplicifolia	pale indian plantain
Calamagrostis pickeringii	Pickering's reedgrass
Calystegia spithamea	erect bindweed
Cardamine longii	Long's bitter cress
Cardamine maxima	larged-leaved toothwort
Cardamine rotundifolia	round-leaved water-cress
<u>Scientific Name</u>	<u>Common Name</u>

Carex alopecoidea	foxtail sedge
Carex amphibola var. amphibola	narrow-leaved sedge
Carex aquatilis	water sedge
Carex arctata	drooping woodsedge
Carex backii	Back's sedge
Carex brunnescens	brownish sedge
Carex bushii	Bush's sedge
Carex crawei	Crawe's sedge
Carex cumulata	clustered sedge
Carex deweyana	Dewey's sedge
Carex formosa	handsome sedge

Carex haydenii	cloud sedge
Carex jamesii	Nebraska sedge
Carex joorii	cypress-swamp sedge
Carex leptonervia	finely-nerved sedge
Carex limosa	mud sedge
Carex louisianica	Louisiana sedge
Carex lupuliformis	hop-like sedge
Carex oligocarpa	few-fruited sedge
Carex peckii	white-tinged sedge
Carex plantaginea	plantain-leaved sedge
Carex polymorpha	variable sedge
Carex pseudocyperus	cyperus-like sedge
Carex siccata	dry-spiked sedge
Carex tuckermanii	Tuckerman's sedge
Castanea pumila	Allegheny chinquapin
Centrosema virginianum	spurred butterfly pea
Ceratophyllum echinatum	spiny coontail
Cercis canadensis	redbud
Chenopodium rubrum	red goosefoot
Cinna latifolia	slender wood reedgrass
Cirsium virginianum	Virginia thistle
Claytonia virginica var. hammondiae	Hammond's yellow spring beauty
Cleistes divaricata	spreading pogonia
Clitoria mariana	butterfly pea
Coelorachis rugosa	wrinkled jointgrass
Commelina erecta	slender dayflower
Conioselinum chinense	hemlock-parsley

Cornus amomum var. schuetzeana

silky dogwood

Corema conradii

broom crowberry

Crataegus calpodendron

pear hawthorn

Crataegus succulenta

fleshy hawthorn

Cryptogramma stelleri

slender rock-brake

Scientific Name

Common Name

Cuscuta cephalanthii

button-bush dodder

Cuscuta indecora

collared dodder

Cynoglossum virginianum var. boreale

northern wild comfrey

Cyperus hystricinus

flatsedge

Cyperus plukenetii

Plukenet's flatsedge

Cyperus polystachyos

coast flatsedge

Cyperus pseudovegetus

marsh flatsedge

Cyperus refractus

reflexed flatsedge

Cyperus retrofractus

rough flatsedge

Cyperus schweinitzii

Schweinitz's flatsedge

Cyperus tenuifolius

low flatsedge

Cypripedium candidum

small white lady's-slipper

Cypripedium reginae

showy lady's-slipper

Dalibarda repens

robin-run-away

Desmodium humifusum

trailing tick-trefoil

Desmodium pauciflorum

few-flowered tick-trefoil

Desmodium sessilifolium

sessile-leaved tick-trefoil

Dicentra canadensis

squirrel-corn

Dicentra eximia

wild bleeding-hearts

Diodia virginiana

larger buttonweed

Draba reptans	Carolina whitlow-grass
Eleocharis brittonii	Britton's spikerush
Eleocharis compressa	flat-stemmed spikerush
Eleocharis equisetoides	knotted spikerush
Eleocharis melanocarpa	black-fruited spikerush
Eleocharis minima	small spikerush
Eleocharis pauciflora	few-flowered spikerush
Eleocharis tenuis var. verrucosa	spikerush
Elephantopus carolinianus	elephant's foot
Ellisia nyctelea	Aunt Lucy
Elymus trachycaulus	slender wheatgrass
Equisetum pratense	meadow horsetail
Equisetum variegatum	variegated horsetail
Eriophorum gracile	slender cottongrass
Eriophorum tenellum	rough cottongrass
Eriophorum vaginatum var. spissum	sheathed cottongrass
Eupatorium capillifolium	dog-fennel thoroughwort
Eupatorium resinosum	pine barren boneset
Euphorbia marilandica	Maryland spurge
Euphorbia purpurea	glade spurge
Filipendula rubra	queen-of-the-prairie
Fraxinus profunda	pumpkin ash
Galactia volubilis	downy milk-pea
<u>Scientific Name</u>	<u>Common Name</u>
Galium hispidulum	coast bedstraw
Galium labradoricum	Labrador marsh bedstraw

<i>Galium trifidum</i>	small bedstraw
<i>Gaultheria hispidula</i>	creeping snowberry
<i>Gentiana linearis</i>	narrow-leaved gentian
<i>Glaux maritima</i>	sea-beach milkwort
<i>Glyceria borealis</i>	small floating mannagrass
<i>Glyceria grandis</i>	American mannagrass
<i>Gnaphalium helleri</i>	Heller's everlasting
<i>Gnaphalium macounii</i>	clammy everlasting
<i>Goodyera tessellata</i>	checkered rattlesnake plantain
<i>Gymnopogon brevifolius</i>	short-leaved skeleton grass
<i>Helonias bullata</i>	swamp-pink
<i>Hemicarpha micrantha</i>	Hemicarpha
<i>Hieracium kalmii</i>	Canada hawkweed
<i>Hottonia inflata</i>	featherfoil
<i>Hybanthus concolor</i>	green violet
<i>Hydrocotyle ranunculoides</i>	floating pennywort
<i>Hydrophyllum canadense</i>	broad-leaved waterleaf
<i>Hypericum adpressum</i>	Barton's St. John's-wort
<i>Hypericum majus</i>	larger Canadian St. John's-wort
<i>Hypericum prolificum</i>	shrubby St. John's-wort
<i>Ilex montana</i>	mountain holly
<i>Isanthus brachiatus</i>	false pennyroyal
<i>Isoetes lacustris</i>	lake quillwort
<i>Isoetes melanopoda</i>	black-based quillwort
<i>Isoetes tuckermanii</i>	Tuckerman's quillwort
<i>Isotria medeoloides</i>	small whorled pogonia
<i>Jeffersonia diphylla</i>	twinleaf

<i>Juncus brachycarpus</i>	short-fruited rush
<i>Juncus caesariensis</i>	New Jersey rush
<i>Juncus coriaceus</i>	awl-leaved rush
<i>Juncus elliotii</i>	Elliott's rush
<i>Kalmia polifolia</i>	pale laurel
<i>Krigia dandelion</i>	dwarf dandelion
<i>Kuhnia eupatorioides</i>	false boneset
<i>Lathyrus ochroleucus</i>	pale vetchling peavine
<i>Lathyrus venosus</i>	smooth veiny peavine
<i>Lechea tenuifolia</i>	slender pinweed
<i>Lemna perpusilla</i>	minute duckweed
<i>Lemna valdiviana</i>	pale duckweed
<i>Liatris scariosa</i> var. <i>novae-angliae</i>	northern blazing star
<i>Limosella subulata</i>	mudweed
<u>Scientific Name</u>	<u>Common Name</u>

<i>Linnaea borealis</i>	twin-flower
<i>Linum intercursum</i>	Florida yellow flax
<i>Linum sulcatum</i>	grooved yellow flax
<i>Listera cordata</i>	heart-leaved twayblade
<i>Listera smallii</i>	kidney-leaved twayblade
<i>Lobelia boykinii</i>	Boykin's lobelia
<i>Lobelia dortmanna</i>	water lobelia
<i>Lonicera canadensis</i>	fly honeysuckle
<i>Luzula acuminata</i>	hairy woodrush
<i>Lycopodium annotinum</i>	stiff clubmoss
<i>Maianthemum canadense</i> var. <i>interius</i>	Western wild lily of the valley

Malaxis monophyllos	white adder's-mouth
Melanthium virginicum	Virginia bunchflower
Micranthemum micranthemoides	Nuttall's mudwort
Milium effusum	tall millet grass
Monarda clinopodia	basil bee-balm
Muhlenbergia capillaris	long-awned smoke grass
Myriophyllum pinnatum	cut-leaved water-milfoil
Myriophyllum tenellum	slender water-milfoil
Myriophyllum verticillatum	whorled water-milfoil
Narthecium americanum	bog asphodel
Nelumbo lutea	American lotus
Nuphar microphyllum	small yellow pond lily
Oenothera humifusa	sea-side evening primrose
Onosmodium virginianum	Virginia false-gromwell
Ophioglossum vulgatum var. pycnostichum	sheathed adder's tongue
Oryzopsis asperifolia	white-grained mountain ricegrass
Oryzopsis pungens	slender mountain ricegrass
Panicum aciculare	bristling panic grass
Panicum boreale	northern panic grass
Panicum flexile	wiry panic grass
Panicum hirstii	Hirsts' panic grass
Panicum xanthophysum	slender panic grass
Penstemon laevigatus	smooth beard tongue
Phlox divaricata	wild blue phlox
Phlox pilosa	downy phlox
Phyla lanceolata	fog fruit
Pinus pungens	table mountain pine

<i>Pinus resinosa</i>	red pine
<i>Plantago pusilla</i>	slender plantain
<i>Platanthera flava</i> var. <i>flava</i>	southern rein orchid
<i>Platanthera hookeri</i>	Hooker's orchid
<i>Platanthera integra</i>	yellow fringeless orchid
<u>Scientific Name</u>	<u>Common Name</u>
<i>Platanthera nivea</i>	snowy orchid
<i>Platanthera orbiculata</i>	large round-leaved orchid
<i>Platanthera peramoena</i>	purple fringeless orchid
<i>Pluchea foetida</i>	stinking fleabane
<i>Poa autumnalis</i>	autumn bluegrass
<i>Poa saltuensis</i>	bluegrass
<i>Polemonium reptans</i>	Greek valerian
<i>Polygala incarnata</i>	pink milkwort
<i>Polygala senega</i>	Seneca snakeroot
<i>Polygonum densiflorum</i>	stout smartweed
<i>Polygonum glaucum</i>	sea-beach knotweed
<i>Polymnia uvedalia</i>	bearsfoot
<i>Potamogeton alpinus</i>	northern pondweed
<i>Potamogeton confervoides</i>	algae-like pondweed
<i>Potamogeton illinoensis</i>	Illinois pondweed
<i>Potamogeton obtusifolius</i>	obtuse-leaved pondweed
<i>Potamogeton praelongus</i>	white-stemmed pondweed
<i>Potamogeton robbinsii</i>	Robbins' pondweed
<i>Potamogeton zosteriformis</i>	flat-stemmed pondweed
<i>Potentilla palustris</i>	marsh cinquefoil

Potentilla tridentata	three-toothed cinquefoil
Prenanthes racemosa	smooth rattlesnake root
Prunus alleghaniensis	Alleghany plum
Prunus angustifolia	Chickasaw plum
Ptelea trifoliata	wafer ash
Pycnanthemum clinopodioides	basil mountain mint
Pycnanthemum torrei	Torrey's mountain mint
Pyrola chlorantha	greenish-flowered wintergreen
Quercus imbricaria	shingle oak
Quercus lyrata	overcup oak
Quercus nigra	water oak
Ranunculus allegheniensis	Allegheny mountain crowfoot
Ranunculus cymbalaria	sea-side crowfoot
Ranunculus fascicularis	early buttercup
Ranunculus reptans	creeping buttercup
Rhexia aristosa	awned meadowbeauty
Rhexia interior	showy meadowbeauty
Rhododendron atlanticum	dwarf azalea
Rhododendron canadense	rhodora
Rhynchospora capillacea	capillary beaked rush
Rhynchospora filifolia	thread-leaved beaked rush
Rhynchospora globularis	grass-like beaked rush
Rhynchospora glomerata	clustered beaked rush
<u>Scientific Name</u>	<u>Common Name</u>
Rhynchospora knieskernii	Knieskern's beaked rush
Rhynchospora microcephala	small-headed beaked rush

<i>Rhynchospora rariflora</i>	rare-flowering beaked rush
<i>Ribes glandulosum</i>	skunk currant
<i>Ribes missouriense</i>	Missouri gooseberry
<i>Rubus canadensis</i>	smooth blackberry
<i>Rudbeckia fulgida</i>	orange coneflower
<i>Ruellia caroliniensis</i>	Carolina petunia
<i>Sacciolepis striata</i>	American cupscale
<i>Sagittaria australis</i>	southern arrow head
<i>Sagittaria cuneata</i>	arum-leaved arrow head
<i>Sagittaria teres</i>	slender arrow head
<i>Salix pedicellaris</i>	bog willow
<i>Sanicula trifoliata</i>	large-fruited sanicle
<i>Scheuchzeria palustris</i>	arrow-grass
<i>Schizachne purpurascens</i>	purple oats
<i>Schwalbea americana</i>	chaffseed
<i>Scirpus longii</i>	Long's bulrush
<i>Scirpus maritimus</i>	salt marsh bulrush
<i>Scirpus microcarpus</i>	barber pole bulrush
<i>Scirpus pedicellatus</i>	stalked bulrush
<i>Scirpus torreyi</i>	Torrey's bulrush
<i>Scleria verticillata</i>	whorled nut rush
<i>Scutellaria leonardii</i>	small skullcap
<i>Silene nivea</i>	snowy campion
<i>Sisyrinchium montanum</i>	strict blue-eyed grass
<i>Smilacina trifolia</i>	three-leaved Solomon's seal
<i>Solidago rigida</i>	stiff goldenrod
<i>Sparganium angustifolium</i>	narrow-leaved bur-reed

Sparganium minimum	small bur-reed
Sphagnum augustifolia	sphagnum
Sphagnum austinii	sphagnum
Sphagnum centrale	sphagnum
Sphagnum contortum	sphagnum
Sphagnum macrophyllum var. floridanum	sphagnum
Sphagnum platyphyllum	sphagnum
Sphagnum riparium	sphagnum
Sphagnum strictum	sphagnum
Sphagnum subsecundum	sphagnum
Spiranthes laciniata	lace-lip ladies'-tresses
Sporobolus neglectus	puff-sheathed dropseed
Stachys palustris var. homotricha	marsh hedge-nettle
Stellaria borealis	northern stichwort
<u>Scientific Name</u>	<u>Common Name</u>
Stellaria pubera	star chickweed
Streptopus amplexifolius	white twisted-stalk
Streptopus roseus	rosy twisted-stalk
Stylisma pickeringii	Pickering's morning-glory
Suaeda rollandii	sea blight
Thuja occidentalis	northern white cedar
Tiarella cordifolia	foamflower
Tofieldia racemosa	false asphodel
Triadenum walteri	Walter's St. John's-wort
Trichomanes sp. 1	filmy fern
Tridens chapmanii	Chapman's redtop

Triglochin maritimum	sea-side arrow-grass
Triosteum augustifolium	narrow-leaved tinker's-weed
Triphora trianthophora	three birds orchid
Trollius laxus ssp. laxus	spreading globe flower
Utricularia biflora	two-flowered bladderwort
Utricularia minor	lesser bladderwort
Utricularia olivacea	dwarf white bladderwort
Utricularia resupinata	reversed bladderwort
Uvularia puberula var. nitida	pine barren bellwort
Valerianella radiata	beaked corn-salad
Valerianella umbilica	corn-salad
Verbena simplex	narrow-leaved vervain
Vernonia glauca	broad-leaved ironweed
Veronica catenata	speedwell
Viburnum alnifolium	witch hobble
Vicia caroliniana	Carolina wood vetch
Viola canadensis	Canada violet
Viola septentrionalis	northern blue violet
Vitis novae-angliae	New England grape
Vulpia elliothea	squirrel fescue
Wolffiella floridana	Florida bogmat
Xyris caroliniana	sand yellow-eyed grass
Xyris fimbriata	fringed yellow-eyed grass
Xyris montana	northern yellow-eyed grass
Zigadenus leimanthoides	oceanorus

FEDERAL AND STATE WILDERNESS AREAS

AREA: N.J.A.C. 7:1E-1.8(a)16, Federal and State wilderness areas, including areas included within the Natural Areas System or the State Register of Natural Areas pursuant to the Natural Areas System Act, N.J.S.A. 13:1B-15.12a et seq. and 15.4 et seq., and N.J.A.C. 7:5A-1.13, and preserved land held by the New Jersey Natural Lands Trust pursuant to the New Jersey Natural Lands Trust Act, N.J.S.A. 13:1B-15.119 et seq.

ENVIRONMENTAL IMPORTANCE: Federal and State wilderness areas are important for recreational activities such as hiking and camping. They are also host to a variety of plant and animal life. Therefore, these areas are of both cultural and ecological importance.

CITATIONS: The Natural Areas System Act, N.J.S.A. 13:1B-15.12a, states that for inclusion in the natural areas system, it is not necessary that an area be wholly unmarked by man, but that the impact of man be not permanent, not seriously destructive of the area's potential for developing natural values, and not obtrusively apparent to the casual observer, and is of such character that the lessening of human impact will allow the land or water to recover natural values of interest. Lands subject to the noise of vehicular traffic and of commercial and industrial operations, and subject to air and water pollution as the result of the activities of man, may be designated as parts of the system if they lie on the perimeters of primary natural areas within the system, and if the purpose of their inclusion within the system is to protect or buffer the primary natural areas.

N.J.S.A. 13:1B-15.4 defines "natural areas" as areas of land or water which have retained their primeval character, although not necessarily completely natural and undisturbed, or having rare or vanishing species of plant and animal life or having similar features of interest which are worthy of preservation for the use of present and future residents of the State.

N.J.A.C. 7:5A-1.3 contains the following definitions:

"Natural area" means an area of land or water, owned in fee simple or held as a conservation easement by the Department, which has retained its natural character, although not necessarily completely undisturbed, or having rare or vanishing species of plant and animal life, or having similar features of interest, which are worthy of preservation for present and future residents of the State.

"Natural Areas System" means those lands designated as natural areas pursuant to this

subchapter, identified at N.J.A.C. 7:5A-1.13, and consisting of lands that serve as habitat for rare plant species or animal species, or both, or are representative of natural communities.

To be placed on the Register of Natural Areas, a site must be an endangered species habitat, a natural community, or a wildlife habitat. An endangered species habitat must be verified as supporting a significant, viable natural occurrence of one or more plant or animal species, or both, determined to be rare, threatened, or endangered in the State or the United States. A natural community supports a significant, viable example of a rare natural community or is an extremely high quality representative of other natural communities of New Jersey. Quality includes, but is not limited to, characteristics of structure, composition, age, size and degree of disturbance. A wildlife habitat provides spawning, breeding, nesting, resting, or feeding habitat which is highly significant for supporting resident or migratory wildlife, or both, of the State, the United States, or the world.

Interim classifications for natural areas, as found in N.J.A.C. 7:5A-1.7, fall into one of two categories:

1. Ecological reserve: an area managed to allow natural processes to proceed with little or no habitat manipulation;
2. Conservation preserve: an area where habitat manipulation is permissible in order to preserve a plant or animal species, community type, or ecosystem;

The following are designated in N.J.A.C. 7:5A-1.13 as components of the Natural Areas System:

Absegami Natural Area

Location: Bass River State Forest, Bass River Township, Burlington County

Management Objective: preservation of Atlantic white cedar and pine/oak communities, southern swamp habitat, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Bass River State Forest

Allamuchy Natural Area

Location: Allamuchy State Park, Allamuchy Township, Warren County, and Byram Township, Sussex County

Management Objective: preservation of a hardwood forest of significant size and successional fields and protection of a rare plant community

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Hopatcong State Park

Batsto Natural Area

Location: Wharton State Forest, Mullica Township, Atlantic County, and Washington Township, Burlington County

Management Objective: preservation of a southern swamp, Pine Barrens bog and floodplain habitats, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Wharton State Forest

Bearfort Mountain Natural Area

Location: Wawayanda State Park, West Milford Township, Passaic County

Management Objective: preservation of scrub oak and hardwood swamp forests, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Wawayanda State Park

Bear Swamp East Natural Area

Location: Downe Township, Cumberland County

Management Objective: preservation of ecological communities and relationships, management of bald eagle nesting site and other known and potential endangered species habitat

Interim Classification: ecological reserve

Administering Agency: Division of Parks and Forestry, through the Office of Natural Lands Management

Black River Natural Area

Location: Black River Wildlife Management Area, Chester and Washington Townships, Morris County

Management Objective: preservation of mesic, marsh, floodplain habitat, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Fish, Game and Wildlife, through Whittingham Wildlife Management Area

Bull's Island Natural Area

Location: Bull's Island Recreation Area, Delaware Township, Hunterdon County

Management Objective: preservation of a northern floodplain habitat, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Delaware and Raritan Canal State Park

Bursch Sugar Maple Natural Area

Location: Hope and Knowlton Townships, Warren County

Management Objective: preservation of a northeastern climax forest, and sugar maple/mixed hardwood community

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Jenny Jump State Forest

Cape May Point Natural Area

Location: Cape May Point State Park, Cape May Point Borough and Lower Township, Cape May County

Management Objective: preservation of freshwater marsh behind a coastal dune, habitat diversity for migratory birds, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Cape May Point State Park

Cape May Wetlands Natural Area

Location: Avalon Borough, Dennis and Middle Townships, Cape May County

Management Objective: preservation of tidal salt marsh ecosystem and rare species habitat

Interim Classification: ecological reserve

Administering Agency: Division of Parks and Forestry, through Cape May Point State Park

Cedar Swamp Natural Area

Location: Lebanon State Forest, Woodland Township, Burlington County

Management Objective: preservation of southern swamp and floodplain habitat, Atlantic white cedar, red maple and pine/oak forest communities, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Lebanon State Forest

Cheesequake Natural Area

Location: Cheesequake State Park, Old Bridge Township, Middlesex County

Management Objective: preservation of habitat diversity including hardwood forest, cedar swamp, mature white pine stand, freshwater swamp, Pine Barren outlier and salt marsh, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Cheesequake State Park

Cook Natural Area

Location: South Brunswick Township, Middlesex County

Management Objective: preservation of freshwater marsh habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Delaware and Raritan Canal State Park

Dryden Kuser Natural Area

Location: High Point State Park, Montague and Wantage Townships, Sussex County

Management Objective: preservation of a northern bog habitat, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through High Point State Park

Dunnfield Creek Natural Area

Location: Worthington State Forest, Pahaquarry Township, Warren County

Management Objective: preservation of a hemlock ravine, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Worthington State Forest

Farny Natural Area

Location: Farny State Park, Rockaway Township, Morris County

Management Objective: preservation of northern mixed oak-hardwood forest, hardwood swamp forest, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Ringwood State Park

Great Bay Natural Area

Location: Little Egg Harbor Township, Ocean County

Management Objective: preservation of tidal salt marsh ecosystem and rare species habitat

Interim Classification: ecological reserve

Administering Agency: Division of Fish, Game and Wildlife, through Assunpink Wildlife Management Area

Hacklebarney Natural Area

Location: Hacklebarney State Park, Chester and Washington Townships, Morris County, Tewksbury Township, Hunterdon County and Bedminster Township, Somerset County

Management Objective: preservation of a river ravine and northern hemlock/mixed hardwood forest, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Hacklebarney State Park

Island Beach Northern Natural Area

Location: Island Beach State Park, Berkeley Township, Ocean County

Management Objective: preservation of barrier island dune system, plant community associations, and rare species habitat

Interim Classification: ecological reserve

Administering Agency: Division of Parks and Forestry, through Island Beach State Park

Island Beach Southern Natural Area

Location: Island Beach State Park, Ocean and Berkeley Townships, Ocean County

Management Objective: preservation of barrier island dune system, saltwater marsh, freshwater bogs, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Island Beach State Park

Johnsonburg Natural Area

Location: Frelinghuysen Township, Warren County

Management Objective: preservation of habitat diversity for rare species

Interim Classification: ecological reserve

Administering Agency: Division of Parks and Forestry, through Jenny Jump State Forest

Ken Lockwood Gorge Natural Area

Location: Ken Lockwood Gorge Wildlife Management Area, Lebanon Township, Hunterdon County

Management Objective: preservation of hemlock/mixed hardwood forest with highly varied

understory, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Fish, Game and Wildlife, through Whittingham Wildlife Management Area

Liberty Park Natural Area

Location: Liberty State Park, Jersey City, Hudson County

Management Objective: preservation of a salt marsh in Upper New York Bay

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Liberty State Park

Manahawkin Natural Area

Location: Manahawkin Wildlife Management Area, Stafford Township, Ocean County

Management Objective: preservation of a mature bottomland hardwood forest, and rare species habitat

Interim Classification: ecological reserve

Administering Agency: Division of Fish, Game and Wildlife, through Assunpink Wildlife Management Area

North Brigantine Natural Area

Location: City of Brigantine, Atlantic County

Management Objective: preservation of salt marsh habitat, coastal dune, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Wharton State Forest

Osmun Forest Natural Area

Location: Knowlton Township, Warren County

Management Objective: preservation of a northeastern mixed hardwood forest

Interim Classification: ecological reserve

Administering Agency: Division of Parks and Forestry, through Jenny Jump State Forest

Oswego River Natural Area

Location: Wharton State Forest, Washington and Bass River Townships, Burlington County

Management Objective: preservation of a hardwood swamp, pitch pine lowland, pine-oak, Atlantic white cedar, and bog communities, which serve as rare species habitat

Interim Classification: ecological reserve

Administering Agency: Division of Parks and Forestry, through Wharton State Forest

Parvin Natural Area

Location: Parvin State Park, Pittsgrove Township, Salem County

Management Objective: preservation of mixed oak and pine forest on the Pine Barrens fringe with a diversity of plant and animal species, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Parvin State Park

Ramapo Lake Natural Area

Location: Ramapo Mountain State Forest, Wanaque and Ringwood Boroughs, Passaic County, and Oakland Borough, Bergen County

Management Objective: preservation of northern upland habitats and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Ringwood State Park

Rancocas Natural Area

Location: Rancocas State Park, Westampton Township, Burlington County

Management Objective: preservation of freshwater marsh and southern floodplain habitat, including one of the largest stands of wild rice in the State

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Lebanon State Forest

Readington Natural Area

Location: Readington Township, Hunterdon County

Management Objective: preservation of early stages of secondary field succession

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Round Valley Recreation Area, for the New Jersey Natural Lands Trust

Strathmere Natural Area

Location: Corson's Inlet State Park, Upper Township, Cape May County

Management Objective: preservation of a dune habitat, plant community associations, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Belleplain State Forest

Sunfish Pond Natural Area

Location: Worthington State Forest, Pahaquarry Township, Warren County

Management Objective: preservation of a lake of glacial origin surrounded by a hardwood forest, and rare species habitat

Interim Classification: ecological reserve

Administering Agency: Division of Parks and Forestry, through Worthington State Forest

Swan Point Natural Area

Location: Brick Township, Ocean County

Management Objective: preservation of tidal salt marsh ecosystem

Interim Classification: ecological reserve

Administering Agency: Division of Parks and Forestry, through Island Beach State Park

Swimming River Natural Area

Location: Borough of Tinton Falls, Monmouth County

Management Objective: preservation of habitat diversity including freshwater marsh, saltwater marsh, woodlands, fields and estuary

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Allaire State Park

Tillman Ravine Natural Area

Location: Stokes State Forest, Walpack and Sandyston Townships, Sussex County

Management Objective: preservation of a hemlock ravine and associated geologic forms, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Stokes State Forest

Troy Meadows Natural Area

Location: East Hanover and Parsippany-Troy Hills Townships, Morris County

Management Objective: preservation of freshwater marsh habitat northern swamp and floodplain habitat, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Ringwood State Park

Washington Crossing Natural Area

Location: Washington Crossing State Park, Hopewell Township, Mercer County

Management Objective: preservation of natural succession and mixed hardwood forests, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Washington Crossing State Park

Wawayanda Hemlock Ravine Natural Area

Location: Wawayanda State Park, Vernon Township, Sussex County

Management Objective: preservation of hemlock/mixed hardwood forest and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Wawayanda State Park

Wawayanda Swamp Natural Area

Location: Wawayanda State Park, Vernon Township, Sussex County, and West Milford Township, Passaic County

Management Objective: preservation of extensive northern swamp and forest habitats, glacially formed, spring-fed pond, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Wawayanda State Park

West Pine Plains Natural Area

Location: Bass River State Forest, Woodland Township, Burlington County

Management Objective: preservation of a significant portion of the globally rare Pine Plains community, including rare plant and invertebrate species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Bass River State Forest

Whittingham Natural Area

Location: Whittingham Wildlife Management Area, Fredon Township, Sussex County

Management Objective: preservation of a northern swamp and floodplain forest on a limestone cliff, rare and exemplary natural communities, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Fish, Game and Wildlife, through Whittingham Wildlife Management Area

The New Jersey Natural Lands Trust Act, N.J.S.A. 13:1B-15.119, created and established in but not of the Division of Parks and Forestry, a body corporate and politic with corporate succession, to be known as the New Jersey Natural Lands Trust. The statutory goals of the trust include the preservation of land in its natural state for enjoyment by the public and to protect elements of natural diversity.

The lands currently owned or held by the New Jersey Natural Lands Trust are as follows:

ATLANTIC COUNTY

Clarks Landing Preserve, Galloway Township

Costa Preserve, Hamilton Township

Danenhauer Preserve, Hamilton Township

Folsom Preserve, Folsom Borough

Hamilton Preserve, Hamilton Township

Heathercroft Preserve, Egg Harbor Township

Pomona Woods, Hamilton Township

BURLINGTON COUNTY

Five Pines, Bass River Township

Holly Ford Ice Preserve, Mount Holly Township

Moorestown Project Areas, Moorestown

Taylor Wildlife Preserve, Cinnaminson Township

CAMDEN COUNTY

Four Mile Branch, Winslow Township

CAPE MAY COUNTY

Frye Preserve, Middle Township

Stacherski Project Area, Ocean City

Shorebird Preserves:

Cape May County Agreement, Middle and Lower Townships

Carl and Evelyn Foster property, Middle Township (7.7 acres)

Charles and Lida Foster property, Middle Township (7.2 acres)

John Jarvis property, Middle Township (6 acres)

Shivers Agreement, Middle Township (114 acres)

Tolz Easement, Middle Township (12.5 acres)

CUMBERLAND COUNTY

Sharps Branch, City of Vineland

Shorebird Preserves:

Environmental Concern, Inc., property, Maurice River Township, (10.4 ares)

Orr property, Maurice River Township, (43 acres)

ESSEX COUNTY

Iris Construction Preserve, Fairfield

GLOUCESTER COUNTY

Big Timber Creek Preserve, Deptford Township

Collings Pines, Monroe Township

Monroe Preserve, Monroe Township

Squankum Branch Preserve, Monroe Township

HUNTERDON COUNTY

Collins Easement, Stockton Township

Isenburger Preserve, Lebanon Township

Readington Preserve, Readington Township

MERCER COUNTY

Curlis Lake Easement, Hopewell Township

Highfields Easement, Hopewell Township

MIDDLESEX COUNTY

Stevens Easement, Edison Township

MONMOUTH COUNTY

Whale Pond Brook Preserve, Eatontown Borough and Ocean Township

MORRIS COUNTY

Primrose Brook Preserve, Harding Township

OCEAN COUNTY

Audubon Easement, Berkeley Township

Barnegat Preserve, Barnegat Township

Crossley Preserve, Berkeley Township and Manchester Township

Double Trouble Preserve, Lacey Township

Kislow Preserve, Stafford Township

Lacey Project Area, Lacey Township

Lazarus Preserve, Stafford Township

Lin-Lee Preserve, Barnegat Township

Mystic Island Preserve, Little Egg Harbor Township

West Plains Preserve, Barnegat Township

SOMERSET COUNTY

Flemer Preserve, Franklin Township

SUSSEX COUNTY

Bufanio, Stillwater Township

Crooked Swamp Caves Preserve, Lafayette Township

Congleton Wildlife Sanctuary, Hardyston, Wantage and Lafayette Township

Elm Spring Preserve, Wantage

McCarthy Preserve, Hopatcong

Reinhardt Preserve, Montague Township

Wallkill River Project Area, Sparta

WARREN COUNTY

Earl Brugler Preserve, Blairstown Township

Limestone Ridge Marsh Preserve, Blairstown Township

AREAS DESIGNATED AS WILD, SCENIC, RECREATIONAL, OR DEVELOPED RECREATIONAL RIVERS

AREA: N.J.A.C. 7:1E-1.8(a)17, Areas designated as wild, scenic, recreational, or developed recreational rivers, pursuant to the National Wild and Scenic Rivers Act, 16 U.S.C. 1271 et seq., or the New Jersey Wild and Scenic Rivers Act, N.J.S.A. 13:8-45 et seq.

ENVIRONMENTAL IMPORTANCE: These areas are culturally and ecologically important. They contain plant, animal and fish life, and are used for recreational activities such as boating, swimming and fishing.

CITATIONS: The National Wild and Scenic Rivers Act, 16 U.S.C. 1271 et seq., states that certain selected rivers of the Nation which, with their immediate environments, possess outstanding remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations.

A wild, scenic or recreational river area eligible to be included in the system is a free-flowing stream and the related adjacent land area that possesses one or more of the values referred to above. Every wild, scenic or recreational river in its free-flowing condition, or upon restoration to this condition, shall be considered eligible for inclusion in the national wild and scenic rivers system and, if included, shall be classified, designated, and administered as one of the following:

(1) Wild river areas - Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

(2) Scenic river areas - Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but

accessible in places by roads.

(3) Recreational river areas - Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

The following rivers and the land adjacent thereto are designated as components of the national wild and scenic rivers system as of 1991:

Delaware, New York, Pennsylvania, and New Jersey - The segment from the point where the river crosses the northern boundary of the Delaware Water Gap National Recreation Area to the point where the river crosses the southern boundary of such recreation area.

When the Secretary of the Interior designates a river as wild, scenic or recreational, notice is published in the Federal Register.

The New Jersey Wild and Scenic Rivers Act, N.J.S.A. 13:8-45 et seq. states that the New Jersey Wild and Scenic Rivers System shall comprise river areas classified, designated and administered as wild, scenic, recreational or developed recreational rivers. These areas are delineated in N.J.A.C. 7:7E-3.46 as follows:

Wild rivers areas, which are those rivers, or sections thereof, that are free of impoundment and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and undeveloped and waters unpolluted. Wild river areas are also consistent with Natural Areas.

Scenic river areas, which are those rivers, or sections thereof, that are free of impoundment, with watersheds or shorelines still largely primitive and undeveloped, but accessible in places by road.

Recreational river areas, which are those rivers, or sections thereof, that are readily accessible, that may have some development along their shorelines, and that may have undergone some impoundment or diversion.

Developed recreational rivers, which are those rivers, or sections thereof, that are readily

accessible, that may have substantial development along their shorelines, that may have undergone substantial impoundment or diversion, but which remain suitable for a variety of recreational uses.

Each classification has a unique set of standards which specify the type of land and water uses permitted or prohibited in order to maintain the quality of the designated river area.

The Lower Atsion segment of the Mullica River is designated as a Wild River Component to the New Jersey Wild and Scenic Rivers System. This designated river area includes the delineated flood prone area and adjacent state owned lands as presented on the Official Map of the Lower Atsion Wild River Segment. The segment begins at the Central Railroad of New Jersey bridge downstream of Route 206 near Atsion, and ends at the nature trail footbridge near Batsto Village, including a portion of the Great Swamp Segment of the Batsto Natural Area.

Upon designation of a river area into the New Jersey Wild and Scenic Rivers System, notice, including a map portraying the boundaries of the river area, is published in the New Jersey Register.